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The plan for the addition of new capacity in 1948 provided that the following power plants be put into operation: the Kalin hydroelectric power plant, 4,000 kilowatts; the Toplinka hydroelectric power plant, 700 kilowatts; the expanded Maritza I thermoelectric power plant, 7,200 kilowatts; the expanded Varna thermoelectric power plant, 5,000 kilowatts; the Vulkan thermoelectric power plant, 4,000 kilowatts; and the Tets Nadezda I line, 12,000 kilowatts.

The total capacity by the end of 1948 will amount to 32,900 kilowatts, an increase of 25 percent.

Thus at the end of 1948 the Bulgarian power industry consisted of 51 hydroelectric power plants, with a capacity of 55,620 kilowatts, or 34.5 percent of the total capacity; 25 thermoelectric power plants, capacity 91,200 kilowatts, or 55.5 percent; and 53 Diesel power plants, capacity 16,000 kilowatts, or 10 percent.

The total installed capacity at that time amounted to 162,820 kilowatts.

Electric Power Production

In 1947 and during the first quarter of 1948, the Bulgarian power industry greatly increased production. The 1947 plan for electric-power production was exceeded by 1.8 percent, while the 1948 plan called for 14.7 percent more than the actual 1947 production (see Table 1).

Important progress was made in improving the reliability of plant equipment and in keeping proper load diagrams. However, a production of 3,750 kilowatt-hours in 1947 and a planned production of 3,850 kilowatt-hours in 1948 indicate good reserves.

The 1947 totals show proper emphasis on high production from the hydroelectric plants, which exceeded the plan by 16.7 percent. The contribution of the hydroelectric plants to the total power production rose from 44 percent, as provided by the plan, to 50.5 percent in actual production.

Unfavorable forecasts of precipitation in 1948 somewhat lowered the planned figure for power production in the hydroelectric power plants. However, actual conditions during the first quarter of 1948 were more favorable than expected, and in that year the hydroelectric power plants played a leading role, producing 4,000 kilowatt-hours.

The most important kind of fuel is coal, the use of which is steadily increasing. The Bulgarian power industry is endeavoring to use low-grade local varieties of brown coal and lignite, characterized by high humidity and low calorific value.

In some districts there are unfavorable fuel balances, which necessitates the use of such other kinds of fuel as petroleum, wood, and charcoal.

The data in Table 2 show that electric-power consumption by industry is growing constantly. The 1948 plan provides for a 17-percent increase. Industry, with a total increase of 14.7 percent in electric-power consumption, is outstripping all other types of consumers.

The figures in Table 4 reflect the extraordinary shifts taking place in the Bulgarian economy. Whereas the law on the nationalization of property definitely guaranteed the predominance of the socialistic sector, the private sector, with 30.1 percent in 1947, fell to 5.6 percent in 1948.

Construction of Power Plants and Nets

Simultaneously with the construction of the power plants put into operation under the 1948 plan, the Bulgarian power industry was pressing preliminary work on still larger hydroelectric and thermoelectric power plants. The most interesting of these are: the

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Maritsa II thermoelectric power plant, with a capacity of 66,000 kilowatts; the Respublika (or Perniki II) thermoelectric power plant, capacity 50,000 kilowatts; the enlarged Adreya thermoelectric power plant, capacity 3,000 kilowatts; the Vulkan power plant, capacity 4,000 kilowatts; the Asenitsa hydroelectric power plant, capacity 6,700 kilowatts; the Petrohan group of hydroelectric power plants -- Petrohan, Byrziya, and Berkovska (these power plants, which will be lined up along the Byrziya River, will have a combined capacity of 25,000 kilowatts); the Rositsa hydroelectric plant, capacity 13,200 kilowatts; the Kitka hydroelectric power plant (at the village of Gorni Lom), capacity 3,200 kilowatts; and the Traycho Kostov hydroelectric power plant (G. Mezdra), capacity 2,110 kilowatts.

An examination of power-plant exploitation in recent years, especially in 1947, reveals a serious obstacle to still better utilization of installed capacity in the inadequate connections among various districts where industrial and intensive agricultural development are taking place. The absence of transmission lines to such districts as Granitond, Pernik, and Sofia is felt especially keenly.

The next plan for the development of the Bulgarian power industry will call for the construction of 100- and 60-kilovolt nets to transmit power to centers of consumption. This project includes the construction of eight power transmission lines -- for example, between Kurilo and Plovdiv and between Pleven and Levskii via Oryachovitsa, 157 and 102 kilometers long respectively.

At the same time work will be undertaken on the construction of five 60-kilovolt power-transmission lines, including a 75-kilometer line between Bol'shoy Iskyr and Sofia. The total length of the 60-kilovolt lines will be 184 kilometers.

In connection with the projected electrification plan, northern and southern Bulgaria will have to be connected by a 110-kilovolt high-tension circuit.

In addition to the 110- and 35-kilovolt lines, 60-, 20-, and 15-kilovolt nets are being planned. Here, in any case, standardization must be observed, as reconstruction otherwise would be very expensive.

The plan also calls for the construction of ten systemic transformer substations with a total capacity of 171,400 kilovolt-amperes. Several of these substations will have a capacity of more than 30,000 kilovolt-amperes. These substations will be key points in the power system, connecting tensions of 110, 60, and 20 kilovolts.

The construction of 15- to 20- kilovolt local transmission lines is progressing more satisfactorily. These distributing nets have been furnished with transformer stations and switch stations.

Of the 1,510 kilometers of transmission line scheduled to be built in 1947, 1,305 kilometers, or 87 percent, were completed. During 1948, another 1,863.5 kilometers of line were to have been built.

An important factor in the construction of nets is the rapid construction and activation of transformer plants. While the plan called for 241 transformer stations in 1947, actually 354 were finished. Thus the plan was exceeded by 30 percent. These results guarantee that the 1948 construction plan, calling for 370 transformer stations, will be exceeded unconditionally. -- Prof Lybomir Kayrakov, in Planovo Stopanstvo (Planned Economy), Vol II, No II, 1948.

[Tables follow.]

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Table I. Electric-Power Production, 1947-1948

Source of Power	Type of Plant	1947				Plan Fulfillment (%)	1948		Compared with 1947
		Plan		Actual Production			Plan		
		Million Kw-h	%	Million Kw-h	%		Million Kw-h	%	
Water	Hydroelectric	211	44	246	50.5	116.7	234	41.5	95
Solid fuel	Thermoelectric	252	53	225	46.0	89.2	310	55.0	138
Liquid fuel	Diesel	16	3	17.7	3.5	105	17	3.5	96
Total:		480	100	448.7	100	101.8	561	100	114.7

Table 2. Comparison of Weights of Fuels Used in Various Thermoelectric Power Plants (In thousands of tons)

Kind of Fuel	Planned Consumption	1947		Yr Plan	1948		Comparison with 1947
		Actual Consumption	Plan Fulfillment (%)		Plan per Kw		
Coal	565	515	91	606	140		118
Charcoal	-	0.22	-	0.21	0.06		96
Wood	-	3.2	-	2	0.55		66
Gasoline	5	5.14	103	5.13	1.2		99
Petroleum	-	0.22	-	0.2	0.09		180

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Table 3. Electric-Power Consumption, 1947-1948

	1949.				1948			Comparison with 1947
	<u>Plan</u>		<u>Actual Consumption</u>		<u>Plan Fulfillment (%)</u>	<u>Plan</u>		
<u>Consumer</u>	<u>Million Kw-h</u>	<u>%</u>	<u>Million Kw-h</u>	<u>%</u>		<u>Million Kw-h</u>	<u>%</u>	
Industry	262	54.5	207.4	56	103.2	320	57	117
Street lighting	8	1.5	7	1.5	87.5	7	1.2	100
Domestic uses	115	24	116	23	100.9	130	23	112
Power plants (in- cluding losses in the nets)	95	20	95.2	19.5	100.2	104	15.8	110
Total	480	100	448.7	100	101.8	561	100	114.7

Table 4. Electric-Power Consumption by Basic Social Sectors of Bulgarian Economy 1947

	1947				1948				Comparison with 1947		
	Plan		Actual Consumption		Plan Fulfillment (%)		Yr Plan			Plan per Kv	
Sector	Million Kw-h	%	Million Kw-h	%			Million Kw-h	%		Million Kw-h	%
State	133.3	27.7	134.6	28.2	101		299.1	53.4	73	52.4	223
Communal	177.2	37.0	176.1	36.6	99.5		196	34.8	47.6	35.5	111
Cooperative	31.6	6.5	29.8	6.1	94		33.5	6.2	8.9	6.5	106
Private	134.9	28.8	148.2	30.1	108	- E N D -	31.4	5.6	7.2	5.6	23
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Total	408	100	488.7	100	101.8		561	100	136.7	100	114.7

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